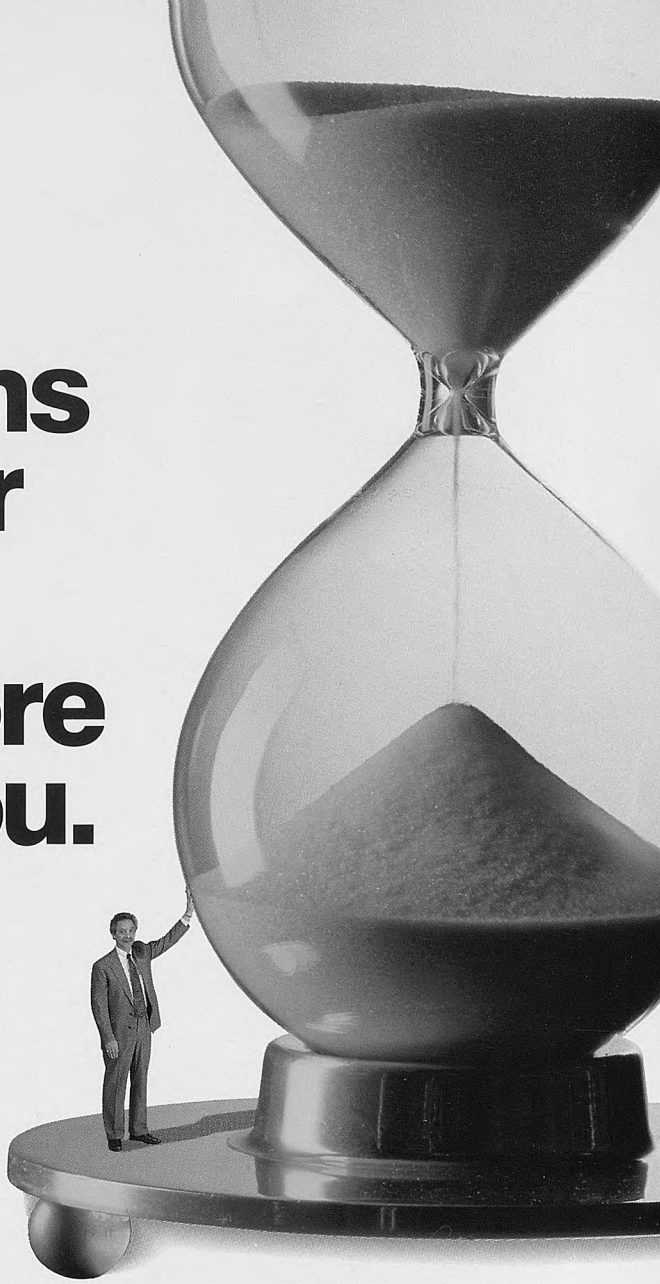
TABLE OF ARTIFICIAL SATELLITES LAUNCHED IN 1992

INTERNATIONAL TELECOMMUNICATION UNION

We gave our Ground Communications Equipment over 250,000,000 test hours before offering it to you.



Now, you can use the same equipment that we use.

For nearly seventeen years we've been our own customer for innovative, highly reliable Ground Communications Equipment (GCE). In fact, for over two hundred and fifty million hours, we've used about one hundred-million-dollars worth of Satellite Transmission Systems' Ground Communications Equipment to build our very successful 1.2- to 32-meter earth stations and never once settled for second-class performance.

We know that if it works flawlessly for us, it will work flawlessly for you.

None of our other GCE customers (like AT&T, RCA, MCI, SPRINT, Hughes, COMSAT, governments and PTT's around the world) have had to settle for less than STS quality, either. The same world-class engineering that helps make us one of the world's preeminent earth station suppliers is available in GCE for your systems at competitive prices.

Convert to our built-in reliability.

Our V90 Synthesized Frequency Converters offer exceptional spectral purity, plus outstanding frequency and temperature stability. They meet the full range of industry requirements for Intelsat IDR, IBS, TDMA, FM-FDM, and SCPC and are easily rack mounted. For video applications, the V90 Series supports today's analog transmissions and tomorrow's digital HDTV services.

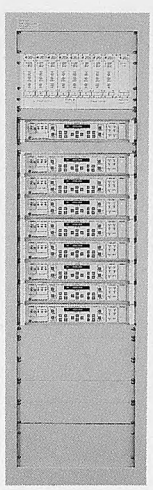
Put simply, the STS V90 Series Converters will take anything we—or you—can throw at them, day after day.

World-class design, manufacturing, installation and service...plus ISO 9001.

We built our reputation as leaders in satellite telecommunications by providing dependable earth stations and networks for Intelsat, Eutelsat, Inmarsat, and other domestic and regional systems around the globe. We also offer such services as subsystem integration, retrofits, and modernization of existing systems, in addition to the world's best-tested line of standard and custom GCE.

Our Vision 90's Program of Continuous Improvement and Total Quality Management makes quality, performance and reliability integral components of everything we do...and our ISO 9001 registration proves it.

Specify STS Ground Communications Equipment and we'll make you the most satisfied customer in the world,... for at least the next 250,000,000 or so hours.



Our extensive line-up includes:

- Up and down converters for L, C, X and Ku bands
- Modulators
- Demodulators
- Equalizers
- Redundancy switching units
- Multi-channel IF demodulator subsystems... and more.

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CALIFORNIA MICROWAVE

Satellite Transmission Systems, Inc.
A Subsidiary of California Microwave, Inc.
125 Kennedy Drive, Hauppauge, NY 11788 USA
516 231-1919 Fax 516 231-1896

This list includes all artificial satellites launched in 1992. It was prepared from information provided by telecommunication administrations of ITU Member countries, the Committee on Space Research (COSPAR), national space research organizations, the International Frequency Registration Board (IFRB) of the ITU, and from details published in the specialized press. The data concerning the orbit parameters are the initial orbital data. Fragments or stages of rockets left over from the launching operations and placed in orbit with the various spacecraft have not been included.

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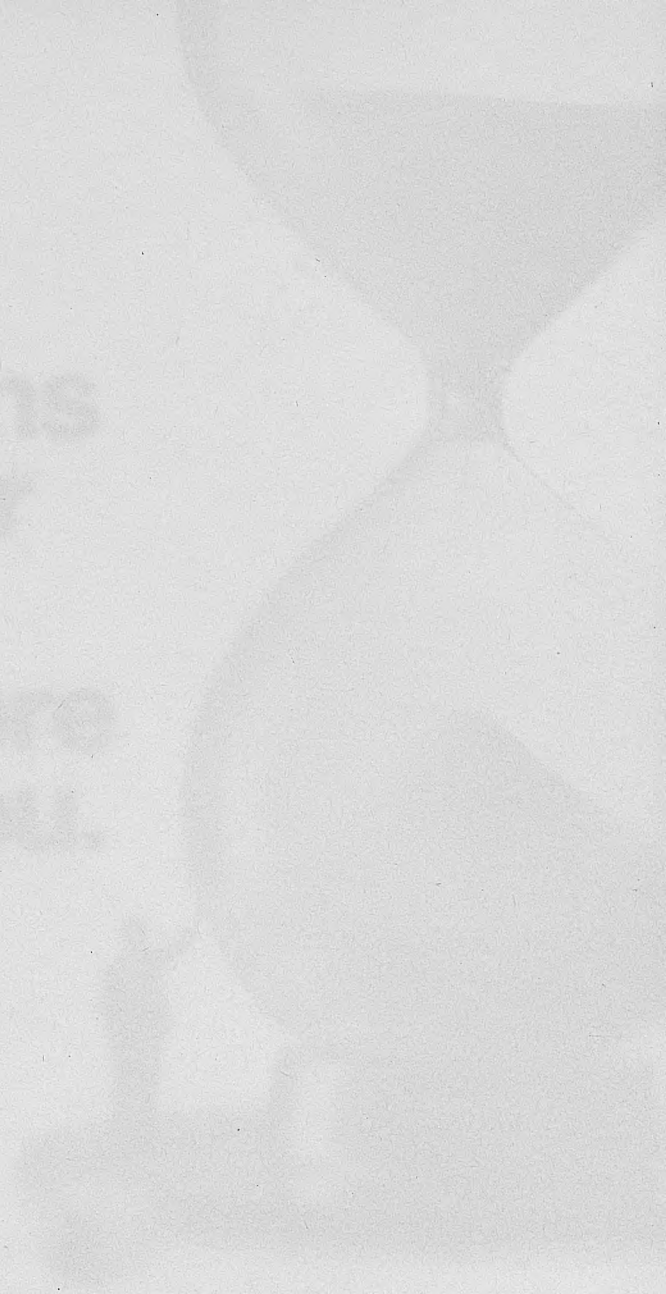

A

Arabsat-1C	1992-10-B
Aussat-B1	1992-54-A
Aussat-B2	1992-90-A

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Cosmos-2224	1992-88-A
Cosmos-2225	1992-91-A
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Fuyo-1	1992-7-A

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Galaxy-7	1992-72-A
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Gorizont-26	1992-43-A
Gorizont-27	1992-82-A
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GPS-2-13	1992-19-A
GPS-2-14	1992-39-A
GPS-2-15	1992-58-A
GPS-2-16	1992-79-A
GPS-2-17	1992-89-A

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Molnya-1 (84)	1992-50-A
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Molnya-3 (43)	1992-85-A
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Resurs-F16	1992-56-A

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Sampex	1992-38-A
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SROSS-3	1992-28-A
STS-42	1992-2-A
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USA-79	1992-9-A
USA-80	1992-19-A
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USA-82	1992-37-A
USA-83	1992-39-A
USA-84	1992-58-A
USA-85	1992-79-A
USA-86	1992-83-A
USA-87	1992-89-A
USASAT-225	1992-13-A

Code name and spacecraft description	*International number*	*Country Organization Site of launching*	*Date*	*Initial orbital data*		*Frequencies and transmitter power*	*Observations*
				Perigee (km) Apogee (km)	*Period (min) Inclination (degree)*		
Cosmos-2175	1992-1-A	CIS	21 Jan.	173 373	88.6 67.1		Space research. Decayed on 20 March 1992
STS-42 space shuttle *Discovery*	1992-2-A	United States (Cape Canaveral)	22 Jan.	293 305	90.5 56.9		Mid-deck payload was the International Microgravity Laboratory *(IML-1),* the first in a series of *STS* flights dedicated to microgravity research in materials and life sciences. Landed at Edwards Air Force Base on 30 January 1992
Cosmos-2176	1992-3-A	CIS	24 Jan.	613 39 342	709 62.8		
Progress-M11	1992-4-A	CIS (Baikonur)	25 Jan.	190 245	88.6 51.6		Expendable supply spacecraft. Delivered expendable material and other cargo to the *Mir-1* orbital complex. Decayed on 13 March 1992
Cosmos-2177 to **Cosmos-2179**	1992-5-A to 1992-5-C	CIS (Baikonur)	29 Jan.	19 150	676 64.5		Space and navigational research. *Proton* launcher
USA-78	1992-6-A	United States	10 Feb.				
JERS-1 (Fuyo-1)	1992-7-A	Japan NSDA (Tanegashima)	11 Feb.	558 579.9	96 97.7	1.275; 2.220; 8.150/8.350 GHz	Japanese Earth Resources Satellite. Synthetic aperture radar; radiometers. *H-1* launcher
Cosmos-2180	1992-8-A	CIS	17 Feb.	980 1028	104.9 82.9	149.94; 399.84 MHz	*Cosmos* launcher
USA-79 (GPS-2-12)	1992-9-A	United States	23 Feb.	19 913 20 318	714.7 54.7	1575.42; 1227.60 MHz	Navigation
Superbird-B1	1992-10-A	Japan Space Communications Corp. (Kourou)	26 Feb.	222 35 776 in geostationary-satellite orbit	631.3 7.0	14/12 GHz	National telecommunications. Twenty-three transponders. *Ariane-44L* launcher
Arabsat-1C 3-axis stabilized; 2.26 × 1.64 × 1.49 m; 1000 kg; 2 solar arrays (1.3 kW)	1992-10-B	International ARABSAT (Kourou)	26 Feb.	222 35 832 in geostationary-satellite orbit at 31° E	632.4 7.0	6/4 GHz band 2.5-2.69 MHz (community television) 3703.1; 4199.9 MHz (telemetry)	Regional telecommunications for the Arab States. Twenty-five C-band and one C/S-band transponders providing 8000 telephone circuits and seven television channels. *Ariane 44L* launcher

Molnya-1 (83) hermetically sealed cylinder with conical ends; 1000 kg; 6 solar panels	1992-11-A	CIS (Plesetsk)	4 March	629 38 998	702 62.9	800 MHz band 40 W (emission) 1000 MHz band (reception) 3400-4100 MHz (retransmission of television)	Television and multichannel radiocommunications
Cosmos-2181	1992-12-A	CIS (Plesetsk)	9 March	994 1027	105 82.9	150; 400 MHz	Navigation. Tsikada programme
Galaxy-5 (USASAT-225) Hughes type *HS 376*	1992-13-A	United States Hughes Communications Inc. (Cape Canaveral)	14 March	1092 36 135 in geostationary-satellite orbit at 125° W	653.9 19.6	6/4 GHz band	Commercial communications. Twenty-four C-band transponders. *Atlas* launcher. Replaces *Westar-5*
Soyuz-TM 14 7 tonnes at launch	1992-14-A	CIS (Baikonur)	17 March				Three cosmonauts. Docked with *Mir-1* orbital complex on 19 March 1992. Zero-gravity biological experiments. Landed on 10 August 1992
STS-45 space shuttle	1992-15-A	United States (Cape Canaveral)	24 March	292 304	90.4 57.0		*Atlas-1* experimental package for atsmospheric and ionospheric research. Landed on 2 April 1992
Cosmos-2182	1992-16-A	CIS	1 April	179 350	89.5 67.2		*Soyuz* launcher. Decayed on 30 May 1992
Gorizont-25 3-axis stabilized; solar panels	1992-17-A	CIS (Baikonur)	2 April	35 628 in geostationary-satellite orbit	1428 1.5	5.7-6.2 GHz (reception) 3.4-3.9 MHz (emission)	Television and multichannel radiocommunications
Cosmos-2183	1992-18-A	CIS (Baikonur)	8 April	190 289	89 64.9		Decayed on 16 February 1993
USA-80 (GPS-2-13)	1992-19-A	United States	10 April	19 877 20 390	716 55.1	1575.42; 1227.60 MHz	Global positioning system
Cosmos-2184	1992-20-A	CIS (Plesetsk)	15 April	987 1027	105 82.9	149.91; 399.76 MHz	*Cosmos* launcher

Code name and spacecraft description	*International number*	*Country Organization Site of launching*	*Date*	*Initial orbital data*		*Frequencies and transmitter power*	*Observations*
				Perigee (km) Apogee (km)	*Period (min) Inclination (degree)*		
Telecom-2B 3-axis stabilized; 1380 kg; solar panels (3450 W)	1992-21-A	France FRANCE TELECOM (Kourou)	15 April	35 466 35 788	1428 0.0	6/4 and 14/12 GHz bands	National telecommunications and television. Ten C-band, eleven Ku-band and five X-band transponders
				in geostationary-satellite orbit at 3° E			
Inmarsat-2 F4 3 axis stabilized; 824 kg	1992-21-B	Inernational INMARSAT (Kourou)	15 April	35 559 35 805	1431 2.0	6/4 and 1 GHz bands	Global mobile and maritime communications
				in geostationary-satellite orbit at 55° W			
Progress-M12	1992-22-A	CIS	19 April	193 230	88.4 51.8		Expendable supply craft. Docked with the *Mir-1* orbital complex. Decayed on 27 June 1992
USA-81	1992-23-A	United States	25 April				
Resurs-F14	1992-24-A	CIS (Plesetsk)	29 April	196 274	88.8 82.3		Study of Earth's resources. Decayed on 29 May 1992
Cosmos-2185	1992-25-A	CIS (Baikonur)	29 April	205 314	89.4 70		Decayed on 11 June 1992
STS-49 space shuttle *Endeavor*	1992-26-A	United States NASA (Cape Canaveral)	7 May	363 375	91.9 28.3		Reusable spacecraft. Landed on 16 May 1992
Palapa-B4 Hughes type *HS 376*	1992-27-A	Indonesia Perumtel (Cape Canaveral)	14 May	703 36 819	703 22.6	6/4 GHz	National telecommunications. Twenty four C-band transponders
				in geostationary-satellite orbit			
SROSS-3	1992-28-A	India (Sriharikota)	20 May	255 429	91 46.03		Remote sensing, plasma measurement and study of γ-ray bursts. Decayed on 14 July 1992
Cosmos-2186	1992-29-A	CIS (Plesetsk)	28 May	195 350	89.7 62.9		*Soyuz* launcher. Decayed on 24 July 1992
Cosmos-2187 to **Cosmos-2194**	1992-30-A to 1992-30-H	Russia (Plesetsk)	3 June	1444 1506	115.3 74		Government communications. *Cosmos* launcher

EUVE	1992-31-A	United States (Cape Canaveral)	7 June	515 527	94.8 28.4		*Extreme Ultra Violet Explorer*. Four grazing incidence telescopes, one fixed in the antisolar direction, the other three rotating about this axis
Intelsat-K 3-axis stabilized; 2924 kg at launch	1992-32-A	International (Cape Canaveral)	10 June	189 35 765 in geostationary-satellite orbit at 21.5° W	630.5 26.7	14/12 GHz band	
Resurs-F15	1992-33-A	Russia (Plesetsk)	23 June	190 257	88.6 82.3		Remote sensing. Recovered on 9 July 1992
STS-50 space shuttle	1992-34-A	United States NASA (Cape Canaveral)	25 June	294 309	90.5 28.4		Reusable spacecraft. Microgravity laboratory. Landed on 9 July 1992
Progress-M13	1992-35-A	CIS (Baikonur)	30 June	189 244	88.5 51.6		Expendable supply craft. Docked with *Mir-1* to supply cargo. Re-entered Earth's atmosphere and decayed on 24 July 1992
Cosmos-2195	1992-36-A	CIS (Plesetsk)	1 July	975 1023	104.8 82.9	149.97; 399.92 MHz	
USA-82	1992-37-A	United States	2 July				
Sampex	1992-38-A	United States (Vandenberg)	3 July	512 687	96.7 81.7		First of the *Small Explorer* series. Four cosmic-ray monitoring instruments
USA-83 (GPS-2-14)	1992-39-A	United States	7 July	187 20 464	358 34.8	1575.42; 1227.60 MHz	Navigation
Cosmos-2196	1992-40-A	CIS (Plesetsk)	8 July	608 29 235	707 62.8		
Insat-2A 3-axis stabilized; solar panels	1992-41-A	India (Kourou)	9 July	35 480 35 800	1428.6 0.1	6/4 and 14/12 GHz bands	National telecommunications and meteorology
Eutelsat-2 F4 3-axis stabilized; 2 solar panels	1992-41-B	Europe EUTELSAT (Kourou)	9 July	35 473 35 800 in geostationary-satellite orbit at 7° E	1428.5 0.1	14/12 GHz band	Sixteen 50-W transponders
Cosmos-2197 to **Cosmos-2202**	1992-42-A to 1992-42-F	CIS (Plesetsk)	13 July	1442 1442	114.3 82.6		*Tsiklon* launcher

Code name and spacecraft description	*International number*	*Country Organization Site of launching*	*Date*	*Initial orbital data*		*Frequencies and transmitter power*	*Observations*
				Perigee (km) Apogee (km)	*Period (min) Inclination (degree)*		
Gorizont-26 3-axis stabilized; solar panels	1992-43-A	CIS (Baikonur)	14 July	36 478 36 659 in geostationary-satellite orbit	1476 1.5	5.7-6.2 GHz (uplink) 3.4-3.9 GHz (downlink)	Television and multichannel radiocommunications. *Proton* launcher
Geotail	1992-44-A	Japan (Cape Canaveral)	24 July	1126 377 300	 28.3		ISTP programme. Satellite will be frequently manoeuvred to cover different regions of the magnetotail. Instruments for measuring magnetic field, plasma and energetic particles
Cosmos-2203	1992-45-A	CIS (Plesetsk)	24 July	173 326	89.5 62.8		Decayed on 22 September 1992
Soyuz-TM 15 7 tonnes at launch	1992-46-A	CIS (Baikonur)	27 July	200 233	88.6 51.6		Manned spacecraft. Crew two Russian and one French cosmonauts. Docked with *Mir-1* orbital complex. Returned to Earth on 1 February 1993
Cosmos-2204 to **Cosmos-2206**	1992-47-A to 1992-47-C	CIS (Baikonur)	30 July	19 125 19 135	675		*Proton* launcher
Cosmos-2207	1992-48-A	CIS (Plesetsk)	30 July	228 313	82.3 89.9		*Soyuz* launcher. Decayed on 13 August 1992
STS-46 space shuttle	1992-49-A	United States NASA (Cape Canaveral)	31 July	299 306	90.6 28.5		Manned reusable spacecraft. It released *Eureca-1* on 2 August 1992. Attempts by the crew to deploy an Italian tethered probe, *TSS-1*, failed. Landed on 8 August 1992
Eureca-1	1992-49-B	Europe released from *STS-46*	2 August	438 447	93.4 28.5		*EUropean REtrievable CArrier.* Microgravity experiments on organisms; X-ray astronomy
Molnya-1 (84) hermetically sealed cylinder with conical ends; 1000 kg; 6 solar panels	1992-50-A	CIS (Plesetsk)	6 August	636 40 603	737 63.6	800 MHz band 40 W (emission) 1000 MHz band (reception) 3400-4100 MHz (retransmission of television)	Television and multichannel radiocommunications
PRC-35	1992-51-A	China (Jiuquan)	9 August	173 354	90 63		Experimental retrievable spacecraft. Microgravity research. Recovered on 1 September 1992. *Long March-2D* launcher

Topex/Poseidon	1992-52-A	United States France (Kourou)	10 August	1322 1341	112 66.5		Study of ocean levels and currents
Kitsat-1 (Uribyol) *UOSAT* platform; 50 kg	1992-52-B	Republic of Korea (Kourou)	10 August	1316 1328	112 66	145.85; 145.90 MHz (uplink) 435.175 MHz (downlink)	Amateur satellite. Scientific communications and educational experiments
S80T 50 kg	1992-52-C	France CNES (Kourou)	10 August	1315 1338	120 66		Observations of the effective occupation of the UHF/VHF bands with a view to the development of a system of tele-management and localization of mobiles
Cosmos-2208	1992-53-A	CIS (Plesetsk)	12 August	790 826	101 74.1		
Aussat-B1 (Optus-B1)	1992-54-A	Australia (Xichang)	13 August	7134 37 299 in geostationary-satellite orbit at 160° E	802 10.7	14/12 and 1 GHz bands	National communications and with New Zealand; mobile satellite service. *Long March-2E* launcher
Progress-M14	1992-55-A	CIS (Baikonur)	15 August	191 251	88.6 51.6		Expendable supply craft. Docked with *Mir-1* orbital complex on 18 August 1992. Re-entered Earth's atmosphere and decayed on 21 October 1992
Resurs-F16	1992-56-A	CIS (Plesetsk)	19 August	193 258	88.7 82.6		Remote sensing. Recovered on 4 September 1992
Pion-1	1992-56-C	CIS	19 August	217 228	89.0 82.6		Decayed on 25 September 1992
Pion-2	1992-56-D	CIS	19 August	217 229	89.0 82.6		Decayed on 24 September 1992
Satcom-C4	1992-57-A	United States (Cape Canaveral)	31 August	1764 35 799 in geostationary-satellite orbit	662 20.5	6/4 GHz band	Television retransmission. Twenty-four C-band transponders
USA-84 (GPS-2-15)	1992-58-A	United States	9 Sept.	187 20 335	356 34.7	1575.42; 1227.60 MHz	Global Positioning System
Cosmos-2209	1992-59-A	CIS (Baikonur)	10 Sept.	35 770 35 901 in geostationary-satellite orbit	1439 1.3		

Code name and spacecraft description	*International number*	*Country Organization Site of launching*	*Date*	*Initial orbital data*		*Frequencies and transmitter power*	*Observations*
				Perigee (km) Apogee (km)	*Period (min) Inclination (degree)*		
Hispasat-1A 3-axis stabilized *Eurostar* platform; 1325 kg in orbit	1992-60-A	Spain Hispasat SA (Kourou)	10 Sept.	205 35 346 in geostationary-satellite orbit at 30° W	627 1.9	14/12-11 GHz band	National telecommunications and direct broadcasting; communications with Latin America
Satcom-C3 (US Satcom-3R) 3-axis stabilized; 784 kg in orbit	1992-60-B	United States GE American Communications (Kourou)	10 Sept.	197 35 705 in geostationary-satellite orbit at 131° W	627 6.9	6/4 GHz band	Television retransmission. Twenty-four C-band transponders
STS-47 space shuttle *Endeavor*	1992-61-A	United States NASA (Cape Canaveral)	12 Sept.	297 301	90.5 56.9		Reusable spacecraft. Seven astronauts including one Japanese (*Spacelab* Japan mission) and two women. Landed on 20 September 1992 at Cape Canaveral
Cosmos-2210	1992-62-A	CIS (Plesetsk)	22 Sept.	173 380	89.7 67.2		*Soyuz* launcher. Landed on 20 November 1992
Mars Observer	1992-63-A	United States NASA (Cape Canaveral)	25 Sept.	heliocentric orbit Earth-Mars trajectory			Magnetometer, gamma-ray spectrometer, laser altimeter, highresolution camera. *Titan-3* launcher
Freja	1992-64-A	Sweden (Jiuquan)	6 Oct.	619 1769	109 63		Space research. *Long March* launcher
PRC-36	1992-64-B	China (Jiuquan)	6 Oct.	211 318	89.7 63		*Long March* launcher. Decayed on 31 October 1992
Foton-5	1992-65-A	CIS	8 Oct.	225 372	90 62.8		Space research in materials technology. Recovered on 24 October 1992
DFS-3	1992-66-A	Germany (Cape Canaveral)	12 Oct.	in geostationary-satellite orbit		30/20, 14/12-11 and 2 GHz bands	Fixed satellite service
Molnya-3 (42) 3-axis stabilized; 1500 kg	1992-67-A	CIS (Plesetsk)	14 Oct.	561 40 854	737 62.8	5.9-6.2 GHz (reception) 3.6-3.9 GHz (emission)	Television and multichannel radiocommunications
Cosmos-2211 to **Cosmos-2216** 40 kg each	1992-68-A to 1992-68-F	CIS (Plesetsk)	20 Oct.	1416 1449	114.3 82.6		Government communications. Launched by a *Tsiklon* rocket

Cosmos-2217 *Molnya*-type spacecraft	1992-69-A	CIS (Plesetsk)	21 Oct.	600 39 400	708 62.8		*Molnya* launcher
STS-52 space shuttle *Columbia*	1992-70-A	United States NASA (Cape Canaveral)	22 Oct.	296 296	90.5 28.5		Microgravity experiments. Landed on 1 November 1992
Lageos-26 diameter: 60 cm; 400 kg	1992-70-B	Italy released from *STS-52*	22 Oct.	5800 5800			Passive spacecraft covered by 426 laser reflectors
CTA	1992-70-C	Canada released from *STS-52*	22 Oct.	164 243	88.4 28.4		Canadian Target Assembly. Decayed on 1 November 1992
Progress-M15	1992-71-A	CIS (Baikonur)	27 Oct.	194 233	88.5 51.6		Expendable supply craft. Docked with *Mir-1* orbital complex. Decayed on 7 February 1993
Galaxy-7 3-axis stabilized; Hughes type *HS 601*; 2.97 tonnes; solar panels (4.3 kW)	1992-72-A	United States Hughes Communi- cations Inc. (Kourou)	28 Oct.	134 27 739 in geostationary-satellite orbit	478.3 6.9	14/12 and 6/4 GHz bands	Telecommunications. Twenty-four C-band transponders of 16 W and 24 Ku-band transponders of 50 W
Cosmos-2218	1992-73-A	CIS (Plesetsk)	29 Oct.	989 1028	105 82.9	149.94; 399.84 MHz	
Ekran-20 3-axis stabilized; 5 tonnes; solar cells	1992-74-A	CIS (Baikonur)	30 Oct.	35 618 in geostationary-satellite orbit	1428 1.4	5.7-6.2 GHz (reception) 3.4-3.9 GHz (emission)	Television relay
Resurs-500	1992-75-A	CIS (Plesetsk)	15 Nov.	224 362	90.3 82.5		Carried a descent module containing greetings, etc. to the American people on the 500th anniversary of Columbus landing. Soft landed west of Seattle on 22 November 1992
Cosmos-2219	1992-76-A	CIS (Baikonur)	17 Nov.	852 881	102 71		
NAK-2	1986-17-GX	CIS (released from *Mir* orbital complex)	20 Nov.	391 410	92.3 51.6		
Cosmos-2220	1992-77-A	CIS (Plesetsk)	20 Nov.	178 368	89.6 67.2		
MSTI-1 135 kg	1992-78-A	United States (Vandenberg)	21 Nov.	341 446	92.2 96.7		

Code name and spacecraft description	*International number*	*Country Organization Site of launching*	*Date*	*Initial orbital data*		*Frequencies and transmitter power*	*Observations*
				Perigee (km) Apogee (km)	*Period (min) Inclination (degree)*		
USA-85 (GPS-2-16)	1992-79-A	United States	22 Nov.	18 341 20 251	681.4 53.5	1575.42; 1227.60 MHz	Navigation
Cosmos-2221	1992-80-A	CIS	24 Nov.	653 678	97.8 82.5		
Cosmos-2222 *Molnya-1* type craft	1992-81-A	CIS (Plesetsk)	25 Nov.	615 39 340	708 62.8		
Gorizont-27 3-axis stabilized; solar panels	1992-82-A	CIS (Baikonur)	27 Nov.	in geostationary-satellite orbit	1472 1.4	5.7-6.2 GHz (reception) 3.4-3.9 GHz (emission)	Television and multichannel radiocommunications. *Proton* launcher
USA-86	1992-83-A	United States US Air Force (Vandenberg)	28 Nov.				*Titan-4* launcher
Superbird-A1	1992-84-A	Japan (Kourou)	1 Dec.	192 35 990 in geostationary-satellite orbit at 158° E	818 7.0		Telecommunications. *Ariane* launcher
Molnya-3 (43) 3-axis stabilized; 1500 kg	1992-85-A	CIS (Plesetsk)	2 Dec.	466 39 103	701.2 62.5	5.9-6.2 GHz (reception) 3.6-3.9 GHz (emission)	Television and multichannel radiocommunications
STS-53 space shuttle *Discovery*	1992-86-A	United States NASA Department of Defense (Cape Canaveral)	2 Dec.	372 381	92 57.0		Landed on 9 December 1992
Cosmos-2223	1992-87-A	CIS (Baikonur)	9 Dec.	189 300	89 64.7		
Cosmos-2224	1992-88-A	CIS (Baikonur)	17 Dec.	35 837 in geostationary-satellite orbit	2.3		Space research. *Prognoz* series. *Proton* launcher

USA-87 (GPS-2-17)	1992-89-A	United States	18 Dec.	20 137 20 541	720 54.74	1575.42; 1227.60 MHz	Navigation
Aussat-B2 (Optus-B2)	1992-90-A	Australia (Juiquan)	21 Dec.			14/12 GHz band	Telecommunications. Tracking stations failed to receive any signals from the spacecraft
Cosmos-2225	1992-91-A	CIS	22 Dec.	179 337	89.4 64.9		*Soyuz* launcher. Decayed on 18 February 1993
Cosmos-2226	1992-92-A	CIS	22 Dec.	1498 1538	116 73.3		*Tsiklon* launcher
Cosmos-2227	1992-93-A	CIS (Baikonur)	25 Dec.	852 880	102 71		*Zenith* launcher
Cosmos-2228	1992-94-A	CIS (Plesetsk)	25 Dec.	646 681	97.8 82.5		*Tsiklon* launcher
Cosmos-2229	1992-95-A	CIS (Plesetsk)	29 Dec.	225 393	90.4 62.8		*Soyuz* launcher. Recovered on 10 January 1993

The following satellites have decayed since the preparation of the "Table of artificial satellites launched in 1991" published in September 1992

satellite	*international number*	*decay*
Explorer-45	1971-96-A	10 January 1992
Cosmos-604	1973-80-A	19 January 1992
Aryabhata	1975-33-A	11 February 1992
Cosmos-756	1975-76-A	5 November 1992
Cosmos-895	1977-15-A	22 March 1992
Molnya-1 (39)	1978-24-A	9 March 1992
Molnya-1 (41)	1978-72-A	8 February 1992
Solwind	1979-17-A	21 July 1992
Molnya-3 (12)	1979-48-A	26 September 1992
Molnya-1 (46)	1980-2-A	22 October 1992
Meteor-1 (30)	1980-51-A	1 March 1992
Molnya-3 (15)	1981-30-A	19 October 1992
Molnya-3 (18)	1982-23-A	23 June 1992
Molnya-1 (54)	1982-50-A	19 November 1992
Molnya-1 (55)	1982-74-A	8 October 1992
Cosmos-1463	1983-46-A	24 January 1993
Cosmos-1578	1984-68-A	10 January 1993
Cosmos-1985	1988-113-A	4 May 1992
USA-36	1989-26-A	23 June 1992
Cosmos-2027	1989-45-A	14 April 1992

satellite	*international number*	*decay*
USA-52	1990-15-B	24 May 1992
Cosmos-2075	1990-38-A	20 February 1992
Gamma	1990-58-A	28 February 1992
Cosmos-2096	1990-75-A	30 August 1992
Cosmos-2107	1990-108-A	5 April 1992
Almaz-1	1991-24-A	17 October 1992
Cosmos-2153	1991-49-A	13 March 1992
Microsat-1	1991-51-A	23 January 1992
Microsat-2	1991-51-B	23 January 1992
Microsat-3	1991-51-C	24 January 1992
Microsat-4	1991-51-D	23 January 1992
Microsat-5	1991-51-E	24 January 1992
Microsat-6	1991-51-F	25 January 1992
Microsat-7	1991-51-G	23 January 1992
Soyuz-TM 13	1991-69-A	28 March 1992
Cosmos-2164	1991-72-A	12 December 1992
Progress-M10	1991-73-A	20 January 1992
Cosmos-2171	1991-78-A	17 January 1992
Cosmos-2174	1991-85-A	30 January 1992

ARABSAT = Arab Satellite Communications Organization

CNES = Centre national d'études spatiales

EUTELSAT = European Telecommunications Satellite Organization

INMARSAT = International Maritime Satellite Organization

NASA = National Aeronautics and Space Administration

NSDA = National Space Development Agency (Japan)

LIST OF GEOSTATIONARY SPACE STATIONS BY ORBITAL POSITIONS

(RR 1042, RR 1060, RR 1488-1491)

(31.12.1992)

Orbital position	Space station		Frequency bands GHz																			
			0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
137.00 W A	USA	USASAT-17B				4		6														
137.00 W C	USA	USASAT-22G				4		6														
136.00 W A	MEX	AMIGO-1										12				17						
136.00 W N	USA	USASAT-16D										12		14								
135.00 W N	USA	GOES WEST	0	1	2																	
135.00 W N	USA	US SATCOM-1				4		6														
135.00 W C	USA	USASAT-21A				4		6														
135.00 W N	USA	USGCSS PH2 E PAC							7	8												
135.00 W N	USA	USGCSS PH3 E PAC			2				7	8												
135.00 W N	USA	USGCSS PH3B E PAC			2				7	8												
135.00 W A	USA	USGCSS PH4 E PAC-3			2														20			*
134.00 W C	USA	USASAT-16C										12		14								
133.00 W N	USA	USASAT-11D				4		6														
133.00 W C	USA	USASAT-22A				4		6														
132.00 W C	USA	USASAT-11C										12		14								
131.00 W N	USA	US SATCOM 3-R				4		6														
131.00 W C	USA	USASAT-22H				4		6														
131.00 W A	USA	USASAT-23B										12		14								
130.00 W C	USA	USASAT-10D										12		14								
130.00 W A	USA	USGCSS PH2 E PAC-2							7	8												
130.00 W N	USA	USGCSS PH3 E PAC-2			2				7	8												
130.00 W A	USA	USGCSS PH3B E PAC-2			2				7	8												
130.00 W A	USA	USGCSS PH4 E PAC-2			2														20			*
130.00 W N	USA	USRDSS WEST		1	2		5	6														
129.00 W C	USA	USASAT-24A				4		6				12		14								
128.00 W N	USA	ACS-1				4		6				12		14								
128.00 W N	USA	COMSTAR D-1				4		6														
127.00 W A	USA	USASAT-21B				4		6														
126.00 W C	USA	USASAT-10C										12		14								
126.00 W N	USA	USASAT-20A				4		6														
125.00 W C	USA	USASAT-22B				4		6														
125.00 W C	USA	USASAT-23E										12		14								
124.00 W C	USA	USASAT-10B										12		14								
123.50 W N	USA	WESTAR-2				4		6														
123.00 W N	USA	WESTAR-5				4		6														
122.00 W N	USA	USASAT-10A										12		14								
121.00 W C	USA	USASAT-23C										12		14								
120.00 W A	USA	MILSTAR-6	0		C2														C20			C*
120.00 W C	USA	SPACENET-1				4		6				12		14								
119.00 W A	USA	OMRDSS WEST		1	2		5	6														
119.00 W N	USA	US SATCOM-2				4		6														
118.70 W C	CAN	ANIK C-3										12		14								
118.70 W N	CAN	ANIK D-1				C4		C6														
116.80 W N	MEX	MORELOS 2				4		6				12		14								
114.90 W C	CAN	ANIK C-1										12		14								
114.90 W N	CAN	ANIK D-2				C4		C6														
113.50 W N	MEX	MORELOS 1				4		6				12		14								
113.00 W A	MEX	SOLIDARIDAD 2MA										12		14								
113.00 W A	MEX	SOLIDARIDAD M2		1																		
111.10 W C	CAN	ANIK E-B				4		6				12		14								

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Orbital position	Space station		Frequency bands GHz																			
			0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
178.00 W C	USA	USASAT-13K				4		6														
177.00 W N	USA	FLTSATCOM-A W PAC	0						7	8												
177.00 W A	USA	FLTSATCOM-C W PAC2	0		2				7	8									20			*
177.00 W A	USAIT	INTELSAT FOS 183E				4		6			11	12		14								
177.00 W C	USAIT	INTELSAT IBS 183E				4		6			11	12		14								
177.00 W N	USAIT	INTELSAT5 183E				4		6			11			14								
177.00 W C	USAIT	INTELSAT5A 183E				4		6			11			14								
177.00 W C	USAIT	INTELSAT7 183E				4		6			11	12		14								
175.00 W A	PNG	PACSTAR A-2		C1			5	6														
175.00 W C	PNG	PACSTAR-2				4		6				12		14								
174.00 W A	USA	ATDRS 174W			2								13		15				C20		*	
174.00 W N	USA	TDRS 174W			2								13		15							
174.00 W C	USA	USASAT-14E				4		6														
174.00 W A	USAIT	INTELSAT T 186E				4		6														
171.00 W A	USA	ATDRS 171W			2								13		15				C20		*	
171.00 W N	USA	TDRS WEST			2									14	15							
170.00 W N	URS	GALS-4							7	8												
170.00 W N	URS	STATSIONAR-10				4	5	6														
170.00 W C	URS	STATSIONAR-10A				4		6														
170.00 W C	URS	STATSIONAR-D2				4		6														
170.00 W N	URS	TOR-5															18	19	20			*
170.00 W N	URS	VOLNA-7	0	1																		
168.00 W N	URS	FOTON-3				4		6														
168.00 W N	URS	POTOK-3				4																
165.00 W A	USA	USASAT-13L									11	12		14								
160.00 W A	RUS	MARAFON-4		1		4		6														
160.00 W N	URS	ESDRN									11			14								
159.00 W C	URS	PROGNOZ-7			2	4																
155.00 W A	URS	EXPRESS-12				4		6			11			14								
155.00 W N	URS	STATSIONAR-26				4	5	6														
148.00 W A	USA	MILSTAR-12	0		C2														C20			C*
146.00 W A	MEX	AMIGO-2										12				17						
146.00 W C	USA	USASAT-20C				4		6														
145.00 W A	MEX	MORELOS 4				4		6				12		14								
145.00 W C	URS	VOLNA-21M		1																		
145.00 W A	USA	FLTSATCOM-A PAC	0						7	8												
145.00 W A	USA	FLTSATCOM-C W PAC3	0		2				7	8									20			*
144.00 W A	USA	USASAT-20B				4		6														
143.00 W N	USA	US SATCOM-5				4		6														
140.00 W C	USA	USASAT-17C				4		6														
139.00 W C	USA	ACS-3		1																		
139.00 W N	USA	US SATCOM 1-R				4		6														
139.00 W A	USA	USASAT-22I				4		6														
138.00 W A	MEX	SOLIDARIDAD KU										12		14								

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Orbital position	Space station		Frequency bands GHz																				
			0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
110.00 W N	CAN	ANIK C-2										12		14								
109.20 W A	MEX	SOLIDARIDAD 1M		1																		
109.20 W A	MEX	SOLIDARIDAD 1MA										12		14								
109.20 W C	MEX	SOLIDARIDAD-1				4		6				12		14								
109.00 W C	USA	USGCSS PH4 E PAC-1			2														20			44
109.00 W C	VENASA	SIMON BOLIVAR-3				4		6														
107.30 W C	CAN	ANIK E-A				4		6				12		14								
106.50 W A	CAN	MSAT		C1	2						11	12	13	14								
106.50 W A	CAN	MSAT-1A		1								12		14								
106.00 W A	USA	MARISAT-CONUS		1		4		6														
106.00 W C	VENASA	SIMON BOLIVAR-1				4		6														
105.00 W N	USA	ATS-5	0	1																		
105.00 W N	USA	FLTSATCOM-A EAST PAC	C0						7	8												
105.00 W A	USA	FLTSATCOM-C E PAC1	0		2				7	8									20			*
105.00 W C	USA	GSTAR-2										12		14								
103.00 W C	USA	GSTAR-1										12		14								
103.00 W C	USA	USASAT-24B				4		6				12		14								
103.00 W C	VENASA	SIMON BOLIVAR-2				4		6														
101.00 W A	USA	MCS-1		1																		
101.00 W C	USA	USASAT-16B										12		14								
101.00 W C	USA	USASAT-17A				4		6														
101.00 W C	USA	USASAT-7D				4		6				12		14								
100.00 W A	USA	ACS-1		C1																		
100.00 W C	USA	ACTS																19	20	29		
100.00 W N	USA	FLTSATCOM E PAC	0						7	8												
100.00 W N	USA	FLTSATCOM-B EAST PAC																	20			44
100.00 W A	USA	FLTSATCOM-C E PAC2	0		2				7	8									20			*
100.00 W N	USA	USRDSS CENTRAL		1	2		5	6														
99.00 W C	USA	USASAT-24J				4		6				12		14								
99.00 W N	USA	USASAT-6B										12		14								
99.00 W C	USA	WESTAR 6-S				4		6														
99.00 W N	USA	WESTAR-1				4		6														
99.00 W N	USA	WESTAR-4				4		6														
97.00 W A	CUB	STSC-2				4		6														
97.00 W N	USA	TELSTAR-3A				4		6														
97.00 W C	USA	USASAT-24D				4		6				12		14								
97.00 W N	USA	USASAT-6A										12		14								
95.00 W N	USA	COMSTAR D-2				4		6														
95.00 W C	USA	USASAT-22D				4		6														
95.00 W N	USA	USASAT-6C										12		14								
93.50 W N	USA	USASAT-12B				4		6														
93.00 W C	USA	USASAT-16A										12		14								
91.00 W C	USA	USASAT-9A										12		14								
91.00 W N	USA	WESTAR-3				4		6														
90.00 W A	G INM	INMARSAT4 GSO-1A		1	2	4		6														
90.00 W A	G INM	INMARSAT4 GSO-2A		1	2	4		6														
90.00 W A	USA	MILSTAR-1	0		C2														C20			C*
89.00 W A	USA	OMRDSS EAST		1	2		5	6														
89.00 W C	USA	USASAT-24E				4		6				12		14								
89.00 W A	VENASA	SIMON BOLIVAR-B				4		6														

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Orbital position	Space station		Frequency bands GHz																				
			0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
88.50 W A	USA	USASAT-12D				4		6														
87.00 W N	USA	COMSTAR D-3				4		6														
87.00 W N	USA	SPACENET-3				4		6				12		14								
87.00 W A	USA	USASAT-9B										12		14								
86.00 W N	USA	USASAT-3C				4		6														
85.00 W A	ARG	NAHUEL-2				4		6				12		14								
85.00 W C	USA	USASAT-9C										12		14								
83.00 W A	CUB	STSC-1				4		6														
83.00 W A	USA	USASAT-24C				4		6				12		14								
81.00 W C	USA	USASAT-22F				4		6														
81.00 W N	USA	USASAT-7B				4		6														
81.00 W C	USA	USASAT-9D									11	12		14								
80.00 W A	ARG	NAHUEL-1				4		6				12		14								
79.00 W N	USA	TDRS CENTRAL			2									14	15							
79.00 W C	USA	TDRS-C2			2								13	14	15							
79.00 W C	USA	USASAT-11A										12		14								
79.00 W N	USA	USASAT-12A				4		6														
79.00 W C	USA	USASAT-24F				4		6				12		14								
77.50 W A	VENASA	SIMON BOLIVAR-A				4		6														
77.00 W C	USA	USASAT-11B										12		14								
76.00 W C	USA	USASAT-12C				4		6														
75.40 W A	CLM	COLOMBIA 1A				4		6														
75.00 W A	CLM	COLOMBIA 2				4		6														
75.00 W N	USA	GOES EAST	0	1	2																	
75.00 W C	USA	USASAT-18A										12		14								
74.00 W C	USA	USASAT-22E				4		6														
74.00 W C	USA	USASAT-7A				4		6														
73.00 W C	USA	USASAT-18B										12		14								
72.00 W C	USA	ACS-2		1																		
72.00 W N	USA	USASAT-8B				4		6														
72.00 W A	VENASA	SIMON BOLIVAR-C				4		6														
71.00 W C	USA	USASAT-18C										12		14								
70.00 W C	B	SATS-1				4		6														
70.00 W N	B	SBTS A1				4		6														
70.00 W A	B	SBTS B1				4		6														
70.00 W C	B	SISCOMIS-3							7	8												
70.00 W A	USA	FLTSATCOM-B W ATL																	20			44
70.00 W N	USA	USRDSS EAST		1	2		5	6														
69.00 W C	USA	USASAT-24H				4		6				12		14								
69.00 W C	USA	USASAT-7C				4		6				12		14								
68.00 W A	USA	MILSTAR-8	0		C2														C20			C*
67.00 W C	USA	USASAT-15D										12		14								
65.00 W C	B	SATS-2				4		6														
65.00 W N	B	SBTS A2				4		6														
65.00 W A	B	SBTS B2				4	5	6														
65.00 W A	B	SBTS C2										12		14								
65.00 W C	B	SISCOMIS-2							7	8												
64.00 W C	USA	USASAT-14D				4		6														
64.00 W C	USA	USASAT-15C										12		14								
62.00 W A	USA	ACS-2A		1																		

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Orbital position	Space station		Frequency bands GHz																				
			0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
45.00 W A	USA	USASAT-13I				C4		C6			11											
45.00 W C	USA	USASAT-25D				4		6														
45.00 W C	USA	USASAT-26D									11	12		14								
44.00 W A	F ESA	EDRSS-W			2												18	19	20	*	30	
43.50 W C	F	VIDEOSAT-3			2							12		14								
43.00 W C	USA	USASAT-13G									11	12		14								
43.00 W C	USA	USASAT-25C				4		6														
43.00 W C	USA	USASAT-26C									11	12		14								
42.50 W A	USA	USGCSS PH3 MID-ATL			2				7	8												
42.50 W A	USA	USGCSS PH3B MID-ATL			2				7	8												
42.50 W C	USA	USGCSS PH4 ATL3			2														20			44
41.00 W A	USA	ATDRS 41W			2								13		15				C20		*	
41.00 W N	USA	TDRS EAST			2									14	15							
41.00 W C	USA	USASAT-14A				4		6														
41.00 W C	USA	USASAT-25B				4		6														
41.00 W C	USA	USASAT-26B									11	12		14								
40.50 W A	USAIT	INTELSAT FOS 319.5E				4		6			11	12		14								
40.50 W N	USAIT	INTELSAT IBS 319.5E				4		6			11	12		14								
40.50 W C	USAIT	INTELSAT K 319.5E									11	12		14								
40.50 W N	USAIT	INTELSAT5A 319.5E				4		6			11			14								
40.50 W C	USAIT	INTELSAT7 319.5E				4		6			11	12		14								
39.00 W C	USA	USGCSS PH4 ATL2			2														20			44
37.50 W C	F	VIDEOSAT-2			2							12		14								
37.50 W A	URS	EXPRESS-1				4		6			11			14								
37.50 W C	URS	STATSIONAR-25				4	5	6														
37.50 W C	USA	USASAT-13A									11	12		14								
37.50 W C	USA	USASAT-25A				4		6														
37.50 W C	USA	USASAT-26A									11	12		14								
35.00 W C	G	SKYNET-4D	0						7	8												44
35.00 W C	USA	USGCSS PH4 ATL1			2														20			44
34.50 W A	USAIT	INTELSAT FOS 325.5E				4		6			11	12		14								
34.50 W N	USAIT	INTELSAT6 325.5E				4	5	6			11			14								
34.50 W C	USAIT	INTELSAT7 325.5E				4		6			11	12		14								
33.00 W A	G	SKYNET-4I																	20			*
32.50 W C	F ESA	MARECS ATL3		1		4		6														
32.00 W A	F ESA	EDRSS-WC			2												18	19	20	*	30	
32.00 W C	G INM	INMARSAT2 AOR-CL-2A		1		4		6														
32.00 W A	G INM	INMARSAT3 AOR-CL-2A		C1		C4		C6														
31.00 W N	G	BSB-1										12		14		C17						
31.00 W C	IRL	EIRESAT-1									11		13									
31.00 W C	USAIT	INTELSAT5 ATL6				4		6			11			14								
31.00 W C	USAIT	INTELSAT5A ATL6				4		6			11			14								
31.00 W C	USAIT	INTELSAT7 329E				4		6			11	12		14								
30.00 W N	E	HISPASAT-1			2				7	8	11	12		14								
27.50 W N	USAIT	INTELSAT5A ATL2				4		6			11			14								
27.50 W N	USAIT	INTELSAT6 332.5E				C4	C5	C6			11			14								
27.50 W C	USAIT	INTELSAT7 332.5E				4		6			11	12		14								
26.50 W N	URS	GALS-1							7	8												
26.50 W C	URS	STATSIONAR-17				4	5	6														
26.50 W C	URS	STATSIONAR-D1				4		6														

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Orbital position	Space station		Frequency bands GHz																				
			0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
62.00 W C	USA	TDRS 62W			2								13		15							
62.00 W C	USA	USASAT-14C				4		6														
62.00 W C	USA	USASAT-15B										12		14								
61.00 W A	B	SBTS B3				4	5	6														
61.00 W A	B	SBTS C3										12		14								
61.00 W C	B	SISCOMIS-1							7	8												
60.00 W C	BEL	SATCOM PHASE-3B							7	8												
60.00 W A	USA	USASAT-15A										12		14								
60.00 W A	USA	USASAT-17D				4		6														
60.00 W C	USA	USASAT-25H				4		6														
60.00 W C	USA	USASAT-26H										11	12		14							
58.00 W C	USA	USASAT-13E										11	12		14							
58.00 W C	USA	USASAT-25G				4		6														
58.00 W C	USA	USASAT-26G										11	12		14							
57.00 W A	USA	USASAT-13H				4		6				11										
56.00 W C	USA	USASAT-13D										11	12		14							
56.00 W C	USA	USASAT-25F				4		6														
56.00 W C	USA	USASAT-26F										11	12		14							
56.00 W C	USAIT	INTELSAT IBS 304E				4		6				11	12		14							
56.00 W C	USAIT	INTELSAT5A 304E				4		6				11			14							
56.00 W C	USAIT	INTELSAT7 304E				4		6				11	12		14							
55.50 W C	F ESA	MARECS ATL4		1		4		6														
55.00 W C	G INM	INMARSAT2 AOR-WEST		1		4		6														
55.00 W A	G INM	INMARSAT3 AOR-WEST		C1		C4		C6														
55.00 W A	G INM	INMARSAT4 GSO-1B		1	2	4		6														
55.00 W A	G INM	INMARSAT4 GSO-2B		1	2	4		6														
55.00 W A	USA	USASAT-14B				4		6														
54.00 W A	G INM	INMARSAT2 AOR-WEST-2		1		4		6														
53.50 W C	G INM	INMARSAT3 AOR-WEST-2		1		4		6														
53.00 W N	USAIT	INTELSAT IBS 307E				4		6				11	12		14							
53.00 W N	USAIT	INTELSAT5A CONT1				C4		C6				11			14							
53.00 W C	USAIT	INTELSAT6 307E				4	5	6				11			14							
53.00 W C	USAIT	INTELSAT7 307E				4		6				11	12		14							
52.50 W N	USA	USGCSS PH3 W ATL			C2				7	8												
52.50 W A	USA	USGCSS PH3B W ATL			2				7	8												
52.50 W A	USA	USGCSS PH4 W ATL			2														20			*
50.00 W C	USA	USASAT-13C										11			14							
50.00 W C	USAIT	INTELSAT IBS 310E				4		6				11	12		14							
50.00 W C	USAIT	INTELSAT MCS ATL A		1		4		6														
50.00 W N	USAIT	INTELSAT5 CONT2				4		6				11			14							
50.00 W N	USAIT	INTELSAT5A CONT2				4		6				11			14							
50.00 W C	USAIT	INTELSAT6 310E				4	5	6				11			14							
50.00 W C	USAIT	INTELSAT7 310E				4		6				11	12		14							
47.00 W C	USA	USASAT-13B										11	12		14							
47.00 W C	USA	USASAT-13J				4		6														
47.00 W C	USA	USASAT-25E				4		6														
47.00 W C	USA	USASAT-26E										11	12		14							
46.00 W A	USA	ATDRS 46W			2								13		15				C20		*	
46.00 W A	USA	TDRS 46W			2								13	14								
45.00 W C	USA	USASAT-13F										11	12		14							

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			0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
14.00 W N	URSIK	STATSIONAR-4				C4		C6														
13.50 W N	URS	FOTON-1				4		6														
13.50 W N	URS	POTOK-1				4																
12.00 W N	F ESA	HIPPARCOS			2																	
12.00 W N	USA	USGCSS PH2 ATL							7	8												
12.00 W N	USA	USGCSS PH3 ATL			2				7	8												
12.00 W A	USA	USGCSS PH3B ATL			2				7	8												
12.00 W A	USA	USGCSS PH4 ATL-4			2														20			*
11.00 W N	F	F-SAT 2			C2							12		14					C20		C30	
11.00 W A	URS	EXPRESS-3				4		6			11			14								
11.00 W C	URS	LOUTCH-6									11			14								
11.00 W N	URS	STATSIONAR-11				4		6														
11.00 W A	URS	VOLNA-11W		1		4		6														
10.00 W C	F ESA	METEOSAT S2			2																	
9.00 W A	USA	MILSTAR-2	0		C2														C20			C*
8.00 W N	F	TELECOM-1A			2	4		6	7	8		12		14								
8.00 W N	F	TELECOM-2A			C2	4		6	C7	C8		12		14								
8.00 W A	F	VIDEOSAT-6			2						11	12		14								
8.00 W A	F	ZENON-A		1	2						11			14								
7.00 W A	F	VIDEOSAT-5			2						C11	C12		C14								
5.00 W N	F	TELECOM-1B			2	4		6	7	8		12		14								
5.00 W N	F	TELECOM-2B			C2	4		6	C7	C8		12		14								
5.00 W A	F	VIDEOSAT-7			2						11	12		14								
4.00 W A	ISR	AMOS 1-B									11			14								
3.00 W C	URS	GALS-11							7	8												
3.00 W C	URS	TOR-11															18	19	20			*
1.00 W C	G	SKYNET-4A	0						7	8												44
1.00 W A	G	SKYNET-4F																	20			*
1.00 W N	USAIT	INTELSAT5A CONT4				4		6			11			14								
1.00 W C	USAIT	INTELSAT7 359E				4		6			11	12		14								
0.00 E C	F	LOCSTAR OUEST		1	2		5	6														
0.00 E N	F ESA	METEOSAT	0	C1	C2																	
1.00 E C	URS	GALS-15							7	8												
1.00 E N	URS	STATSIONAR-22				4	5															
1.00 E C	URS	TOR-15															18	19	20			*
1.00 E C	URS	VOLNA-21	0																			
1.50 E A	ISR	AMOS 1-A									11			14								
3.00 E N	F	TELECOM-1C			2	4		6	7	8		12		14								
3.00 E N	F	TELECOM-2C			C2	4		6	C7	C8		12		14								
4.00 E A	F EUT	EUTELSAT 1-6	C0								C11	C12		C14								
4.00 E A	USA	MILSTAR-13	0		C2														C20			C*
5.00 E N	F ESA	OTS	0								11			14								
5.00 E N	S NOT	TELE-X			2							12		14		17						
5.00 E C	URS	TOR-19															18	19	20			*
6.00 E N	G	SKYNET-4B	0						7	8												44
6.00 E A	G	SKYNET-4G																	20			*
7.00 E C	F	F-SAT 1			2	4		6											20		30	
7.00 E N	F EUT	EUTELSAT 1-3	0								11	12		14								
7.00 E N	F EUT	EUTELSAT 2-7E		C1	C2						11	12		14								
8.00 E C	URS	GALS-7							7	8												

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			0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
26.50 W C	URS	TOR-1															18	19	20			*
26.50 W C	URS	VOLNA-13	0	1																		
26.00 W N	F ESA	MARECS ATL1	0	1		4		6														
25.00 W N	URS	GALS-9							7	8												
25.00 W N	URS	STATSIONAR-8				4	5															
25.00 W C	URS	TOR-9															18	19	20			*
25.00 W C	URS	VOLNA-1A	0	1																		
25.00 W C	URS	VOLNA-1M		1																		
24.50 W N	USAIT	INTELSAT6 335.5E				C4	C5	C6			11			14								
24.50 W C	USAIT	INTELSAT7 335.5E				4		6			11	12		14								
24.40 W C	LUX	GDL-5						6			11											
24.00 W N	URS	PROGNOZ-1			2																	
23.00 W N	USA	FLTSATCOM ATL	0						7	8												
22.50 W N	USA	FLTSATCOM-B EAST ATL																	20			44
22.50 W A	USA	FLTSATCOM-C E ATL1	0		2				7	8									20			*
21.50 W A	USAIT	INTELSAT FOS 338.5E				4		6			11	12		14								
21.50 W N	USAIT	INTELSAT K 338.5E									11	12		14								
21.50 W N	USAIT	INTELSAT MCS ATL C		1		4		6														
21.50 W N	USAIT	INTELSAT5 ATL5				4		6			11			14								
21.50 W C	USAIT	INTELSAT5A 338.5E				4		6			11			14								
21.50 W C	USAIT	INTELSAT7 338.5E				4		6			11	12		14								
20.00 W C	LUX	GDL-4						6			11											
19.00 W A	D	TV-SAT 2			C2							12				17						
19.00 W N	F	TDF-1			C2						11	12				17						
19.00 W A	F	TDF-2			C2						11	12				17						
19.00 W N	F ESA	L-SAT			2							12	13	14		17		19	20	28	30	
19.00 W A	I	SARIT			C2						11		13			17	18		20		30	
18.00 W N	BEL	SATCOM PHASE-3							7	8												
18.00 W A	USAIT	INTELSAT FOS 342E				4		6			11	12		14								
18.00 W N	USAIT	INTELSAT IBS 342E				4		6			11	12		14								
18.00 W N	USAIT	INTELSAT5A 342E				4		6			11			14								
18.00 W C	USAIT	INTELSAT7 342E				4		6			11	12		14								
17.80 W A	BEL	SATCOM-4	C0						C7	C8									20			C*
17.00 W A	G INM	INMARSAT2 AOR-EAST-2		1		4		6														
17.00 W C	G INM	INMARSAT3 AOR-EAST-2		1		4		6														
16.00 W N	URS	WSDRN									11			14								
16.00 W N	URS	ZSSRD-2									11	12	13	14								
16.00 W A	USA	MILSTAR-3	0		C2														C20			C*
15.50 W N	G INM	INMARSAT2 AOR-EAST		1		4		6														
15.50 W A	G INM	INMARSAT3 AOR-EAST		C1		C4		C6														
15.50 W A	G INM	INMARSAT4 GSO-1C		1	2	4		6														
15.50 W A	G INM	INMARSAT4 GSO-2C		1	2	4		6														
15.00 W N	USA	FLTSATCOM-A ATL	C0						7	8												
15.00 W A	USA	FLTSATCOM-C E ATL2	0		2				7	8									20			*
14.50 W A	URS	GOMS-1M	C0	C1	C2	4		6	C7	C8									C20	C29		
14.00 W A	URS	EXPRESS-2				4		6			11			14								
14.00 W C	URS	GOMS-1	0	1	2				7	8									20	29		
14.00 W N	URS	LOUTCH-1									C11			C14				A19		A28		
14.00 W C	URS	MORE-14		1		4		6														
14.00 W N	URS	VOLNA-2		1																		

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			0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
8.00 E	C	URS STATSIONAR-18				4	5	6														
8.00 E	C	URS TOR-8															18	19	20			*
8.00 E	C	URS VOLNA-15	0	1																		
10.00 E	A	F APEX			C2	C4		C6											C20		C30	40
10.00 E	C	F LOCSTAR CENTRE		1	2		5	6														
10.00 E	C	F ESA METEOSAT S1			2																	
10.00 E	N	F EUT EUTELSAT 2-10E		C1	C2						11	12		14								
10.00 E	N	F EUT EUTELSAT-1	0								11	12		14								
12.00 E	C	URS GALS-17							7	8												
12.00 E	N	URS PROGNOZ-2			2																	
12.00 E	C	URS STATSIONAR-27				4		6														
12.00 E	C	URS TOR-18															18	19	20			*
12.00 E	C	URS VOLNA-27	0																			
13.00 E	N	F EUT EUTELSAT 1-2	C0								C11	12		14								
13.00 E	N	F EUT EUTELSAT 2-13E		C1	C2						11	12		14								
13.20 E	N	I ITALSAT			2													19	20	28	*	40
15.00 E	A	F ZENON-B		1	2	4		6														
15.00 E	C	ISR AMS-1									11			14								
15.00 E	C	ISR AMS-2									11			14								
15.00 E	C	URS GALS-12							7	8												
15.00 E	C	URS STATSIONAR-23				4		6														
15.00 E	C	URS TOR-12															18	19	20			*
15.00 E	C	URS VOLNA-23	0																			
16.00 E	A	F EUT EUTELSAT 1-4	C0								C11	C12		C14								
16.00 E	A	F EUT EUTELSAT 2-16E		C1	C2						11	12		14								
16.00 E	C	I SICRAL-1A	0		2				7	8		12		14					20			*
17.00 E	C	ARS SABS 1-2									11			14								
17.00 E	A	ARS SABS-1									11			14								
19.00 E	N	ARSARB ARABSAT 1-A			2	4		6														
19.00 E	C	ARSARB ARABSAT 2-A				4		6			11			14								
19.00 E	A	F ZENON-C		1	2						11			14								
19.00 E	A	URS TOR-26															18	19	20			*
19.00 E	A	USA MILSTAR-9	0		C2														C20			C*
19.20 E	N	LUX GDL-6						C6			11	12	13	14								
19.20 E	C	LUX GDL-7									11		13	14								
20.00 E	A	G INM INMARSAT4 GSO-1D		1	2	4		6														
20.00 E	A	G INM INMARSAT4 GSO-2D		1	2	4		6														
21.00 E	A	IRQ BABYLONSAT-3									11			14								
21.50 E	N	F EUT EUTELSAT 1-5	C0								11	12		14								
21.50 E	C	F EUT EUTELSAT 2-21.5E			2						11	12		14								
22.00 E	C	I SICRAL-1B	0		2				7	8		12		14					20			*
22.50 E	C	F LOCSTAR EST		1	2		5	6														
23.00 E	C	URS GALS-8							7	8												
23.00 E	C	URS STATSIONAR-19				4	5	6														
23.00 E	C	URS TOR-7															18	19	20			*
23.00 E	C	URS VOLNA-17	0	1																		
23.50 E	N	D DFS-1			2						11	12		14					20		30	
26.00 E	N	ARSARB ARABSAT 1-B			2	C4		C6														
26.00 E	C	ARSARB ARABSAT 2-B				4		6			11			14								
26.00 E	C	D DFS-6			2						11	12		14					20	29		

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			0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
26.00 E	C	IRN ZOHREH-2									11			14								
26.00 E	A	TUR TURKSAT-1									11			14								
27.00 E	C	URS TOR-20															18	19	20			*
28.00 E	A	USA FLTSATCOM-C INDOC1	0		2				7	8									20			*
28.50 E	N	D DFS-2			2						11	12		14					20		30	
28.50 E	A	D KEPLER 1			2						11	12		14								
29.00 E	A	ARS STRATSAT-1							7	8												
30.00 E	A	IRQ BABYLONSAT-1									11			14								
30.00 E	A	USA MILSTAR-10	0		C2														C20			C*
31.00 E	C	ARSARB ARABSAT 1-C				4		6														
31.00 E	C	F EUT EUTELSAT 2-31E			2						11	12		14								
31.00 E	C	TUR TURKSAT-1B									11			14								
32.00 E	C	F VIDEOSAT-1			2							12		14								
32.00 E	A	F VIDEOSAT-4			2							C12		C14								
32.00 E	C	URS TOR-21															18	19	20			*
33.00 E	C	F EUT EUTELSAT 2-33E			2						11	12		14								
33.50 E	C	D DFS-5			2						11	12		14				19	20	29		
34.00 E	C	IRN ZOHREH-1									11			14								
35.00 E	N	URS GALS-6							7	8												
35.00 E	N	URS PROGNOZ-3			2	4																
35.00 E	N	URS STATSIONAR-2				C4	5	C6														
35.00 E	C	URS STATSIONAR-D3				4		6														
35.00 E	C	URS TOR-2															18	19	20			*
35.00 E	C	URS VOLNA-11	0	1																		
36.00 E	N	F EUT EUTELSAT 2-36E		C1	C2						11	12		14								
37.50 E	A	SEY SEYSAT-2				4		6			11			14								
38.00 E	C	PAK PAKSAT-1	0								11			14								
39.00 E	A	ISR AMOS 1-C									11			14								
40.00 E	A	URS EXPRESS-4				4		6			11			14								
40.00 E	C	URS LOUTCH-7									11			14								
40.00 E	N	URS STATSIONAR-12				4	5	6														
40.00 E	C	URS TOR-22															18	19	20			*
40.00 E	A	URS VOLNA-40E		1		4		6														
41.00 E	A	ARS STRATSAT-2							7	8												
41.00 E	A	IRN ZOHREH-4									11			14								
41.00 E	A	PAK PAKSAT-2										12		14								
42.00 E	C	TUR TURKSAT-1A									11			14								
42.50 E	A	SEY SEYSAT-1				4		6			11			14								
43.00 E	A	D EUROPE STAR-2									11	12		14								
45.00 E	A	D EUROPE STAR-1									11	12		14								
45.00 E	A	MLT MELITASAT-1A						6			11	12		14								
45.00 E	N	URS GALS-2							7	8												
45.00 E	N	URS STATSIONAR-9				4	5	6														
45.00 E	C	URS STATSIONAR-9A				4		6														
45.00 E	C	URS STATSIONAR-D4				4		6														
45.00 E	N	URS TOR-3															18	19	20			*
45.00 E	N	URS VOLNA-3	0	1																		
45.00 E	C	URS VOLNA-3M		1																		
45.50 E	A	MLT MELITASAT-1B						6			11	12		14								
46.00 E	A	TUR TURKSAT-2									11			14								

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Orbital position	Space station		Frequency bands GHz																				
			0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
47.00 E A	F ESA	EDRSS-EC			2												18	19	20	*	30	
47.00 E C	IRN	ZOHREH-3									11			14								
47.50 E A	D	EUROPE STAR-3									11	12		14								
49.00 E C	URS	GALS-13							7	8												
49.00 E N	URS	STATSIONAR-24				4	5	6														
49.00 E C	URS	TOR-16															18	19	20			*
49.00 E C	URS	VOLNA-25	0																			
50.00 E C	TUR	TURKSAT-1C									11			14								
51.00 E A	IRQ	BABYLONSAT-2							-		11			14								
53.00 E C	G	SKYNET-4C	0						7	8												44
53.00 E A	G	SKYNET-4H																	20			*
53.00 E A	URS	EXPRESS-5				4		6			11			14								
53.00 E N	URS	LOUTCH-2									C11			C14								
53.00 E C	URS	MORE-53		1		4		6														
53.00 E C	URS	TOR-23															18	19	20			*
53.00 E N	URS	VOLNA-4		1																		
53.00 E N	URSIK	STATSIONAR-5				C4		6														
55.00 E A	USA	MILSTAR-4	0		C2														C20			C*
56.00 E C	USA	USGCSS PH4 INDOC1			2														20			44
57.00 E A	USA	USGCSS PH2 INDOC2							7	8												
57.00 E A	USA	USGCSS PH3 INDOC2			2				7	8												
57.00 E A	USA	USGCSS PH3B INDOC2			2				7	8												
57.00 E A	USAIT	INTELSAT FOS 57E				4		6			11	12		14								
57.00 E N	USAIT	INTELSAT5 INDOC3				4		6			11			14								
57.00 E N	USAIT	INTELSAT5A INDOC2				4		6			11			14								
57.00 E C	USAIT	INTELSAT7 57E				4		6			11	12		14								
58.00 E C	URS	TOR-13															18	19	20			*
59.00 E A	F ESA	EDRSS-E			2												18	19	20	*	30	
60.00 E N	USA	USGCSS PH2 INDOC							7	8												
60.00 E C	USA	USGCSS PH3 INDOC			2				7	8												
60.00 E A	USA	USGCSS PH3B INDOC			2				7	8												
60.00 E C	USA	USGCSS PH4 INDOC2			2														20			44
60.00 E N	USAIT	INTELSAT5A INDOC1				4		6			11			14								
60.00 E C	USAIT	INTELSAT6 60E				4	5	6			11			14								
60.00 E C	USAIT	INTELSAT7 60E				4		6			11	12		14								
62.00 E C	URS	TOR-24															18	19	20			*
63.00 E N	USAIT	INTELSAT MCS INDOC A		C1		C4		C6														
63.00 E C	USAIT	INTELSAT5A INDOC3				4		6			11			14								
63.00 E C	USAIT	INTELSAT6 63E				4	5	6			11			14								
63.00 E C	USAIT	INTELSAT7 63E				4		6			11	12		14								
64.00 E A	G INM	INMARSAT3 IOR-1		C1		C4		C6														
64.00 E A	G INM	INMARSAT4 GSO-1E		1	2	4		6														
64.00 E A	G INM	INMARSAT4 GSO-2E		1	2	4		6														
64.50 E C	F ESA	MARECS IND1		1		4		6														
64.50 E N	G INM	INMARSAT2 IOR-1		1		4		6														
65.00 E C	G INM	INMARSAT2 IOR-2		1		4		6														
65.00 E C	G INM	INMARSAT3 IOR-2		1		4		6														
65.00 E C	URS	TOR-25															18	19	20			*
66.00 E A	USAIT	INTELSAT FOS 66E				4		6			11	12		14								
66.00 E N	USAIT	INTELSAT MCS INDOC D		C1		C4		C6														

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Orbital position	Space station		Frequency bands GHz																				
			0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
66.00 E N	USAIT	INTELSAT5 INDOC4				4		6			11			14								
66.00 E C	USAIT	INTELSAT5A 66E				4		6			11			14								
66.00 E C	USAIT	INTELSAT7 66E				4		6			11	12		14								
68.00 E A	USA	USASAT-14I				4		6			11	12		14								
69.00 E C	URS	GALS-14								7	8											
69.00 E C	URS	TOR-14															18	19	20			*
70.00 E A	TON	TONGASAT-H70				4		6			11			14								
70.00 E C	URS	GALS-16								7	8											
70.00 E N	URS	STATSIONAR-20				4		6														
70.00 E C	URS	TOR-17															18	19	20			*
70.00 E C	URS	VOLNA-19	0																			
70.00 E C	USA	USASAT-13N									11	12		14								
72.00 E A	USA	FLTSATCOM INDOC	0							7	8											
72.00 E A	USA	FLTSATCOM-B INDOC																	20			44
72.00 E A	USA	FLTSATCOM-C INDOC2	0		2					7	8								20			*
72.00 E A	USA	USASAT-14J				4		6			11	12		14								
72.50 E N	USA	MARISAT-INDOC	0		C2	C4		C6														
73.50 E A	ARS	STRATSAT-3								7	8											
73.50 E A	TUR	TURKSAT-1D									11	12		14								
74.00 E N	IND	INSAT-1B	0			4	5	6														
74.00 E C	IND	INSAT-2C	0			4	5	6														
74.00 E A	IND	INSAT-2KC									11			14								
75.00 E N	USA	FLTSATCOM INDOC	0							7	8											
75.00 E A	USA	FLTSATCOM-C INDOC3	0		2					7	8								20			*
76.00 E C	URS	GOMS	0							7	8								20	29		
76.00 E A	URS	GOMS-M	C0	C1	C2	4		6	C7	C8									C20	C29		
77.00 E N	URS	CSSRD-2									11	12	13	14								
77.00 E A	USA	FLTSATCOM-A INDOC	0							7	8											
77.50 E C	G	ASIASAT-D				4		6			11			14								
77.50 E C	G	ASIASAT-DK1										12		14								
78.50 E A	THA	THAICOM-2				C4		C6				C12		C14								
80.00 E A	URS	EXPRESS-6				4		6			11			14								
80.00 E N	URS	LOUTCH-8									11			14								
80.00 E N	URS	POTOK-2				4																
80.00 E N	URS	PROGNOZ-4			A2																A	
80.00 E N	URS	STATSIONAR-1				4	5	6														
80.00 E N	URSIK	STATSIONAR-13				4		6														
81.50 E N	URS	FOTON-2				4		6														
83.00 E N	IND	INSAT-1D	0			4	5	6														
83.00 E N	IND	INSAT-2A	0			4	5	6														
83.00 E A	IND	INSAT-2KA									11			14								
83.30 E C	TON	TONGASAT AP-KU-4										12		14								
85.00 E N	URS	GALS-3								7	8											
85.00 E N	URS	STATSIONAR-3				4	5	6														
85.00 E C	URS	STATSIONAR-D5				4		6														
85.00 E N	URS	TOR-4															18	19	20			*
85.00 E N	URS	VOLNA-5	0	1																		
85.00 E C	URS	VOLNA-5M		1																		
87.50 E C	CHN	CHINASAT-1				4		6														
87.50 E C	CHN	DFH-3-0C				4		6														

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			0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
90.00 E	A	URS EXPRESS-7				4		6			11			14								
90.00 E	N	URS LOUTCH-3									11			14								
90.00 E	C	URS MORE-90		1		4		6														
90.00 E	N	URS STATSIONAR-6				4		6														
90.00 E	N	URS VOLNA-8		1																		
90.00 E	A	USA MILSTAR-5	0		C2														C20			C*
91.50 E	A	MLA MEASAT-1				4		6			11	12		14								
91.50 E	A	USAIT INTELSAT5A 91.5E				4		6			11			14								
91.50 E	A	USAIT INTELSAT7 91.5E				4		6			11	12		14								
93.50 E	N	IND INSAT-1C	0			4	5	6														
93.50 E	N	IND INSAT-2B	0			4	5	6														
93.50 E	A	IND INSAT-2KB									11			14								
95.00 E	A	MLA MEASAT-3				4		6			11	12		14								
95.00 E	N	URS CSDRN									11			14								
95.00 E	A	USAIT INTELSAT5A 95E				4		6			11			14								
95.00 E	A	USAIT INTELSAT7 95E				4		6			11	12		14								
96.50 E	A	URS EXPRESS-8				4		6			11			14								
96.50 E	N	URS LOUTCH-9									11			14								
96.50 E	N	URS STATSIONAR-14				C4		C6														
98.00 E	C	CHN CHINASAT-3				4		6														
99.00 E	A	URS EXPRESS-13				4		6			11			14								
99.00 E	N	URS STATSIONAR-T						6														
99.00 E	N	URS STATSIONAR-T2						6														
100.50 E	C	G ASIASAT-E				4		6			11			14								
100.50 E	C	G ASIASAT-EK1										12		14								
101.00 E	A	THA THAICOM-1				C4		C6				C12		C14								
101.50 E	A	CHN CHINASAT-11									11			14								
103.00 E	C	CHN DFH-3-0B				4		6														
103.00 E	C	CHN STW-2				4		6														
103.00 E	A	URS EXPRESS-9				4		6			11			14								
103.00 E	N	URS LOUTCH-5									11			14								
103.00 E	N	URS STATSIONAR-21				4	5	6														
103.00 E	A	URS VOLNA-103E		1		4		6														
105.00 E	A	CHN FY-2A	0	1	2	4		6														
105.50 E	A	CHN CHINASAT-12									11			14								
105.50 E	C	G ASIASAT-1				4		6														
105.50 E	C	G ASIASAT-CK				4		6			11			14								
105.50 E	C	G ASIASAT-CK1										12		14								
108.00 E	N	INS PALAPA-B1				4		6														
110.00 E	A	G INM INMARSAT4 GSO-1F		1	2	4		6														
110.00 E	A	G INM INMARSAT4 GSO-2F		1	2	4		6														
110.00 E	N	J BS-2			2							12		C14								
110.00 E	N	J BS-3			2							12		14								
110.00 E	N	J BSE			2									14								
110.00 E	A	J JMCS-2							7	8												
110.00 E	C	J N-SAT-110										12		14								
110.50 E	C	CHN CHINASAT-2				4		6														
113.00 E	N	INS PALAPA-B2				4		6														
113.00 E	C	KOR KOREASAT-2										12		14								
115.50 E	A	CHN DFH-3-0D				4		6														

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Orbital position		Space station	Frequency bands GHz																				
			0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
116.00 E	C	G ASIASAT-B				4		6														
116.00 E	C	G ASIASAT-BK				4		6			11			14								
116.00 E	C	G ASIASAT-BK1										12		14								
116.00 E	C	KOR KOREASAT-1										12		14								
118.00 E	N	INS PALAPA-B3				4		6														
120.00 E	C	J GMS-120E	0	1	2																	
120.00 E	C	J SJC-2										12		14								
120.00 E	A	THA THAICOM-3				C4		C6				C12		C14								
121.00 E	A	CHN DFH-3-0E				4		6														
122.00 E	C	G ASIASAT-A				4		6														
122.00 E	C	G ASIASAT-AK				4		6			11			14								
122.00 E	C	G ASIASAT-AK1										12		14								
124.00 E	C	J SCS-1B										12		14		17	18	19		*		
124.00 E	C	J SJC-1										12		14								
125.00 E	C	CHN DFH-3-0A				4		6														
125.00 E	N	CHN STW-1				4		6														
128.00 E	C	J N-SAT-128										12		14								
128.00 E	C	J SCS-1A										12		14		17	18	19		*		
128.00 E	N	URS GALS-10							7	8												
128.00 E	N	URS STATSIONAR-15				4	5	6														
128.00 E	C	URS STATSIONAR-D6				4		6														
128.00 E	C	URS TOR-6															18	19	20			*
128.00 E	C	URS VOLNA-9	0	1																		
128.00 E	C	URS VOLNA-9M		1																		
130.00 E	A	CHN CHINASAT-4				4		6														
130.00 E	N	J ETS-2	0	1	2						11										34	
130.00 E	C	TON TONGASAT AP-1				4		6														
130.00 E	C	TON TONGASAT C/KU-1				4		6														
130.00 E	N	URS GALS-5							7	8												
130.00 E	C	URS PROGNOZ-5			2																	
130.00 E	C	URS TOR-10															18	19	20			*
132.00 E	N	J CS-2A			2	4		6								17	18	19		28		
132.00 E	N	J CS-3A			2	4		6								17	18	19		28		
132.00 E	C	J N-STAR-A			2	4		6				12		14		17	18	19	20	*	30	
133.00 E	A	USA MILSTAR-7	0		C2														C20			C*
134.00 E	N	INS PALAPA PAC-1				4		6														
134.00 E	C	TON TONGASAT AP-2				4		6														
134.00 E	C	TON TONGASAT C/KU-2				4		6				12		14								
135.00 E	N	J CSE			2	4		6								17	18	19	20	28	30	
136.00 E	N	J CS-2B			2	4		6								17	18	19		28		
136.00 E	N	J CS-3B			2	4		6								17	18	19		28		
136.00 E	C	J N-STAR-B			2	4		6				12		14		17	18	19	20	*	30	
138.00 E	C	TON TONGASAT AP-3				4		6														
138.00 E	C	TON TONGASAT C/KU-3				4		6				12		14								
139.00 E	A	INS PALAPA PAC2				4		6														
140.00 E	A	J GMS-140E	0	1	2																	
140.00 E	N	J GMS-3	0	1	2																	
140.00 E	N	J GMS-4	0	1	2																	
140.00 E	A	URS EXPRESS-10				4		6			11			14								
140.00 E	N	URS LOUTCH-4									11			14								

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			0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
164.00 E N	AUS	AUSSAT-A 164E										12	13	14								
164.00 E N	AUS	AUSSAT-A 164E PAC										12		14								
164.00 E C	AUS	AUSSAT-B 164E		1								12		14							30	
164.00 E C	AUS	AUSSAT-B 164E MOB		1								12		14								
164.00 E C	AUS	AUSSAT-B 164E MXL		1								12		14								
166.00 E C	URS	GOMS-2	0	1	2				7	8									20	29		
166.00 E A	URS	GOMS-2M	C0	C1	C2	4		6	C7	C8									C20	C29		
166.00 E C	URS	PROGNOZ-6			2																	
166.00 E A	USA	USASAT-14H				4		6				12		14								
167.00 E N	URS	VSSRD-2									11	12	13	14								
167.45 E A	PNG	PACSTAR A-1		C1			5	6														
167.45 E C	PNG	PACSTAR-1				4		6				12		14								
168.00 E A	USA	USASAT-14G				4		6				12		14								
170.00 E C	USA	USASAT-13M										12		14								
170.75 E C	TON	TONGASAT C-1				4		6				12		14								
170.75 E A	TON	TONGASAT C-1-R										12		14								
172.00 E N	USA	FLTSATCOM W PAC	0						7	8												
172.00 E N	USA	FLTSATCOM-B WEST PAC																	20			44
172.00 E A	USA	FLTSATCOM-C W PAC1	0		2				7	8									20			*
172.00 E A	USA	USASAT-14K				4		6				12		14								
174.00 E A	USAIT	INTELSAT FOS 174E				4		6			11	12		14								
174.00 E C	USAIT	INTELSAT5A PAC1				4		6			11			14								
174.00 E C	USAIT	INTELSAT7 174E				4		6			11	12		14								
175.00 E N	USA	USGCSS PH2 W PAC							7	8												
175.00 E N	USA	USGCSS PH3 W PAC			C2				C7	C8												
175.00 E A	USA	USGCSS PH3B W PAC			2				7	8												
175.00 E A	USA	USGCSS PH4 W PAC-3			2														20			*
176.50 E N	USA	MARISAT-PAC	0	1		4		6														
177.00 E A	USAIT	INTELSAT FOS 177E				4		6			11	12		14								
177.00 E N	USAIT	INTELSAT5 PAC2				4		6			11			14								
177.00 E N	USAIT	INTELSAT5A PAC2				4		6			11			14								
177.00 E C	USAIT	INTELSAT7 177E				4		6			11	12		14								
177.50 E A	USA	MILSTAR-14	0		C2														C20			C*
178.00 E N	F ESA	MARECS PAC1	0	1		4		6														
178.00 E C	G INM	INMARSAT2 POR-2		1		4		6														
178.00 E C	G INM	INMARSAT3 POR-2		1		4		6														
179.00 E C	G INM	INMARSAT2 POR-1		1		4		6														
179.00 E A	G INM	INMARSAT3 POR-1		C1		C4		C6														
179.00 E A	G INM	INMARSAT4 GSO-1G		1	2	4		6														
179.00 E A	G INM	INMARSAT4 GSO-2G		1	2	4		6														
180.00 E A	USA	USGCSS PH2 W PAC-2							7	8												
180.00 E A	USA	USGCSS PH3 W PAC-2			2				7	8												
180.00 E A	USA	USGCSS PH3B W PAC-2			2				7	8												
180.00 E A	USA	USGCSS PH4 W PAC-2			2														20			*
180.00 E A	USAIT	INTELSAT FOS 180E				4		6			11	12		14								
180.00 E N	USAIT	INTELSAT MCS PAC A		C1		C4		C6														
180.00 E N	USAIT	INTELSAT5 PAC3				4		6			11			14								
180.00 E C	USAIT	INTELSAT5A PAC3				4		6			11			14								
180.00 E C	USAIT	INTELSAT7 180E				4		6			11	12		14								

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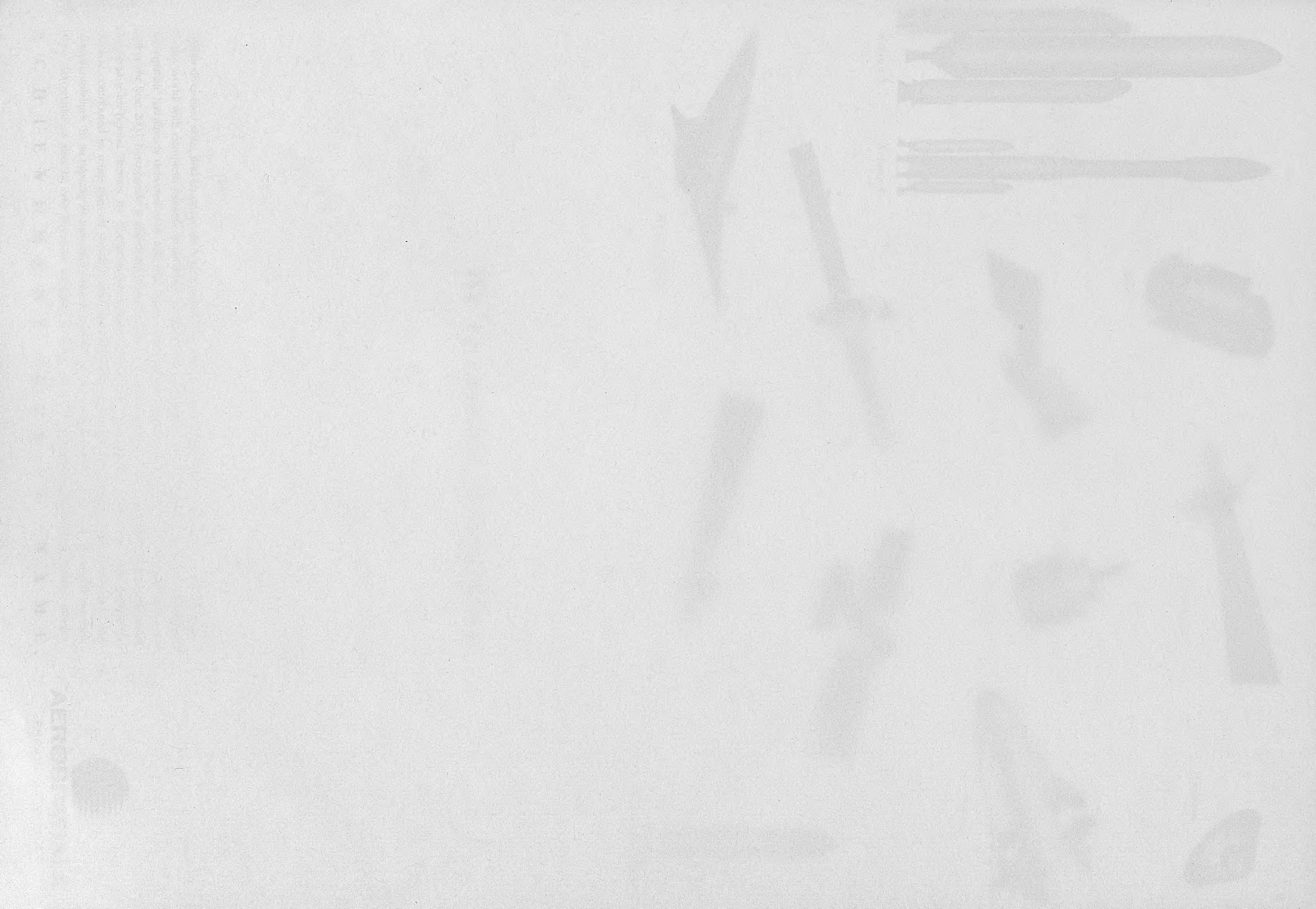
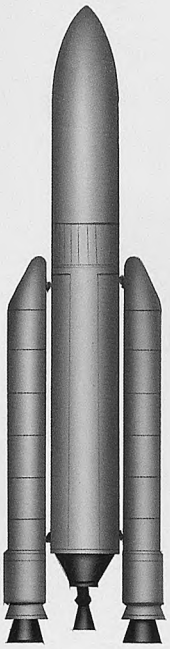
Orbital position	Space station		Frequency bands GHz																				
			0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
140.00 E C	URS	MORE-140		1		4		6														
140.00 E N	URS	STATSIONAR-7				4		6														
140.00 E N	URS	VOLNA-6		1																		
142.00 E A	THA	THAICOM-4				4		6			11	12		14								
142.50 E C	TON	TONGASAT AP-4				4		6														
142.50 E C	TON	TONGASAT C/KU-4				4		6				12		14								
144.00 E A	INS	PALAPA PAC-3				4		6														
145.00 E A	URS	EXPRESS-11				4		6			11			14								
145.00 E C	URS	LOUTCH-10									11			14								
145.00 E N	URS	STATSIONAR-16				4		6														
146.00 E A	J	JMCS-1							7	8												
146.00 E C	J	N-SAT-146										12		14								
148.00 E A	MLA	MEASAT-2				4		6			11	12		14								
150.00 E N	J	ETS-5		1	2		5	6														
150.00 E N	J	JCSAT-1										12		14								
150.00 E A	USA	MILSTAR-15	0		C2														C20			C*
152.00 E N	AUS	AUSSAT A 152E										12		14								
152.00 E C	AUS	AUSSAT A 152E PAC										12		14								
152.00 E A	USA	MILSTAR-11	0		C2														C20			C*
154.00 E C	J	ETS-6-FS			2												18	19	20	29	*	43
154.00 E C	J	ETS-6-FSM																	20	*		
154.00 E C	J	ETS-6-I			2																	
154.00 E C	J	ETS-6-IS			2															23	*	43
154.00 E C	J	ETS-6-ISM																		*		
154.00 E C	J	ETS-6-MSS			2																	
154.00 E N	J	JCSAT-2										12		14								
155.00 E C	USA	USGCSS PH4 W PAC-1			2														20			44
156.00 E N	AUS	AUSSAT B2										12		14								
156.00 E N	AUS	AUSSAT B2 MC										12		14								
156.00 E C	AUS	AUSSAT B2-MOB		1								12		14								
156.00 E N	AUS	AUSSAT B2-NZ										12		14								
156.00 E C	AUS	AUSSAT B2-R		1								12										
156.00 E N	AUS	AUSSAT B2-S										12									30	
156.00 E N	AUS	AUSSAT-A 156E										12	13	14								
156.00 E N	AUS	AUSSAT-A 156E PAC										12		14								
156.00 E C	AUS	AUSSAT-B 156E MXL										12		14								
158.00 E N	J	SUPERBIRD-A							7	8		C12		C14		C17	C18	C19		C*		
160.00 E A	AUS	ACSAT-1							7	8												
160.00 E N	AUS	AUSSAT B1										12		14								
160.00 E N	AUS	AUSSAT B1 MC										12		14								
160.00 E C	AUS	AUSSAT B1-MOB		1								12		14								
160.00 E N	AUS	AUSSAT B1-NZ										12		14								
160.00 E C	AUS	AUSSAT B1-R		1								12										
160.00 E N	AUS	AUSSAT B1-S										12										
160.00 E N	AUS	AUSSAT-A 160E										12	13	14								
160.00 E N	AUS	AUSSAT-A 160E PAC										12		14								
160.00 E C	AUS	AUSSAT-B 160E MXL		1								12		14								
160.00 E N	J	GMS-160E	0	1	2																	
162.00 E N	J	SUPERBIRD-B							7	8		12		14		17	18	19		*		
164.00 E A	AUS	ACSAT-2	0						7	8												

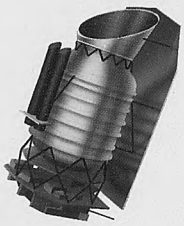
A Only advance publication under RR 1042
C Presently being coordinated under RR 1060
N Notified





Ariane 5

Ariane 4



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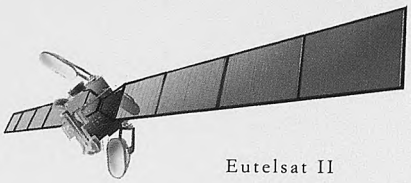
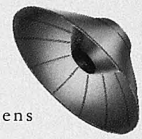


Eutelsat II



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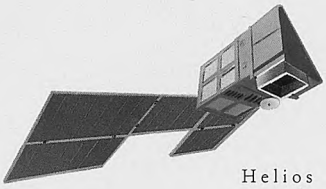

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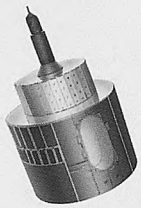

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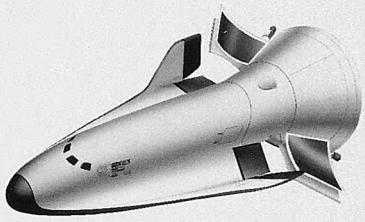

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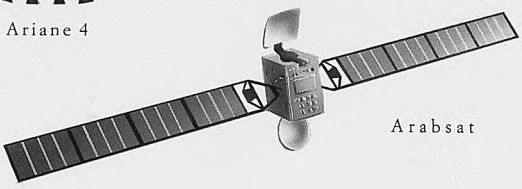
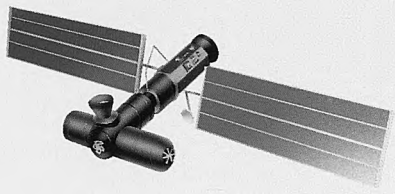
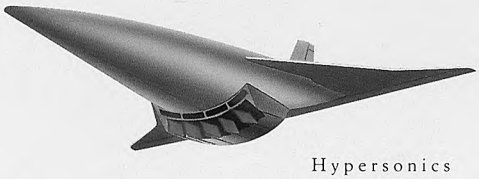


Arabsat

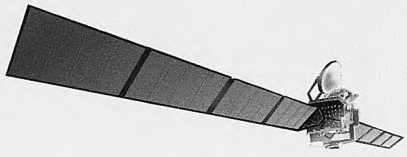


space station

MSBS
strategic missile



Hypersonics



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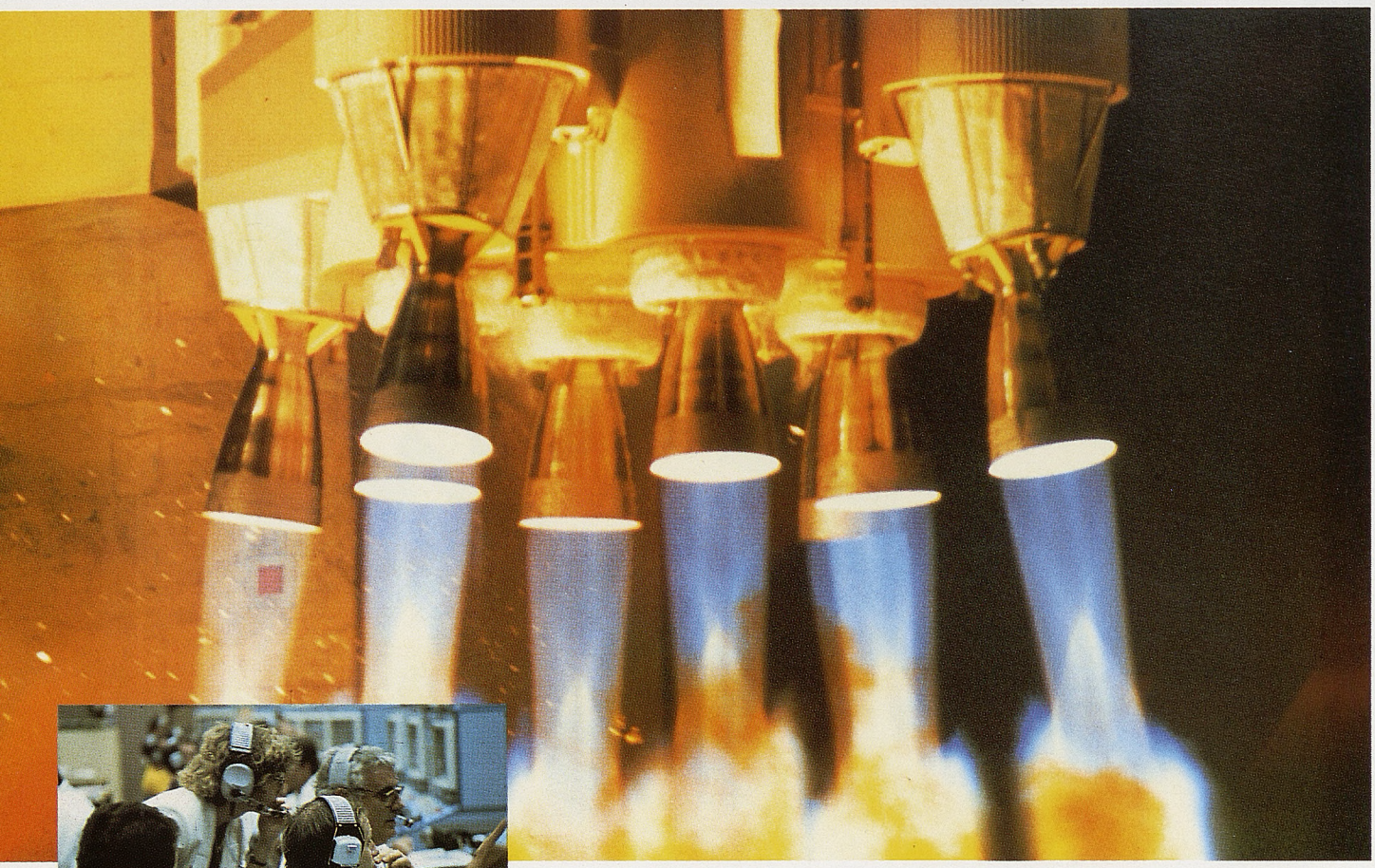

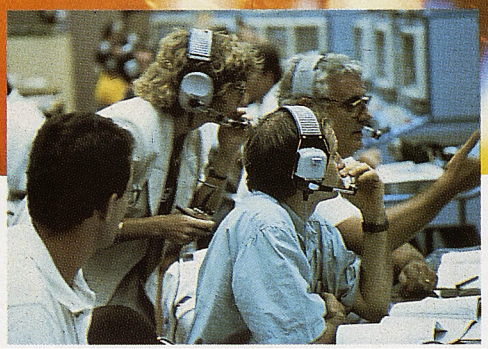

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